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ABSTRACT

School broadcasting has a relatively long history in Japan. Radio programs intended for school use were inaugurated by NHK (Japan Broadcasting Corporation) in 1935, and school television broadcasting began in 1953. As of April 1983, the NHK sends 13 hours and 50 minutes of radio programs and 33 hours and 30 minutes of television programs per week, which are aimed at various levels of students from kindergarten through senior high. Approximately 22,500 (or 90%) of primary schools use at least some of NHK's school broadcasts. One of the changes in educational broadcasting in schools in the past 10 years has been the diffusion of videotape recorders (VTRs), and the increase in use of recorded programs. Many schools are now setting up VTR tape libraries for school use. This paper introduces the history of educational broadcasting in schools, and discusses current problems of school broadcast utilization based on results from various research and studies, including nationwide annual surveys of the utilization of school broadcasting since 1950. (Author/JB)

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The Role of Educational Broadcasts in Japanese Schools

NHK (Japan Broadcasting Corporation)
Broadcasting Culture Research Institute

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The Role of Educational Broadcasts in Japanese Schools

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I. Introduction

Many visitors to Japanese Schools are surprised to find that almost every classroom is equipped with a color TV set. In Japan, today, each primary school has an average of sixteen color TV receivers.

NHK (the Japan Broadcasting Corporation), Japan's only nationwide non-profit public service broadcasting organization, operates two TV networks: the general service (GTV) and the educational service (ETV). The Educational Channel offers a broad range of programs — designed variously for young children, primary or high school students, or adults — which are broadcast continuously in color every day from 6:00 until 24:00.

School broadcasting has a relatively long history in Japan. Radio programs intended for school use were inaugurated by NHK on a nationwide scale in 1935. In 1953 NHK was the first broadcasting station to initiate TV school broadcasts.

At present (as of Apr. 1983) NHK sends schools 45 radio programs (including 19 rebroadcasts) totaling 13 hours and 50 minutes per week and 122 television programs (including 57 rebroadcasts) totaling 33 hours and 30 minutes. Last of all the television programs switched over to color in 1977, and now all programs are in color. Approximately 22,500 primary schools, that is, 90% of all primary schools, use at least some of NHK's school broadcasts (1983).

Aimed at various levels from kindergarten to senior high school, these programs cover such subjects as language, music, natural science, and social science. The styles of the programs also vary: in some, a TV teacher gives a lecture, and in others, the message is conveyed through a puppet show or children's drama. There are also documentaries presenting information about other countries.

Japan's commercial broadcasting stations also used to transmit school broadcasts over their nationwide television networks; in 1974, however, they suspended broadcasting for schools due to the lack of sponsors for such programs. The educational administrative authorities of five of Japan's 47 prefectures have launched broadcasting to the schools in their districts using commercial stations.

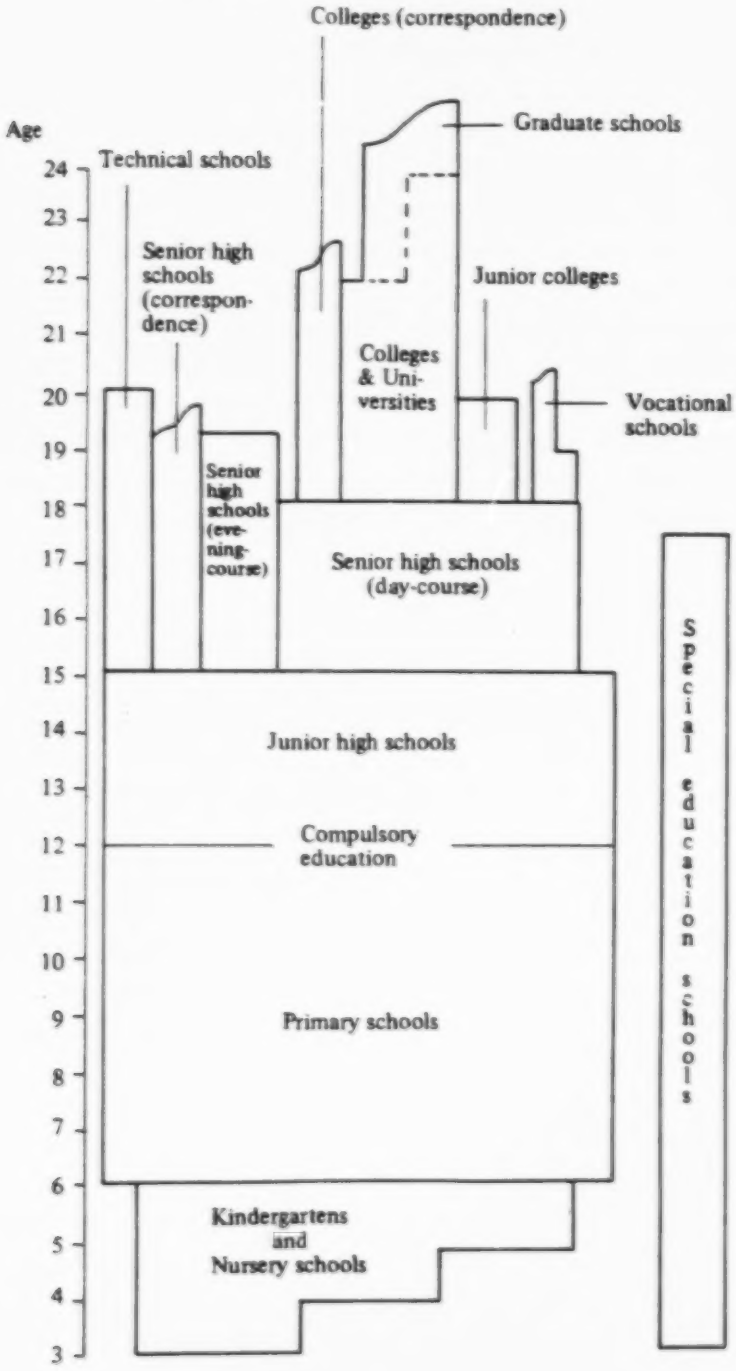
Since the factors leading Japanese schools to use broadcasts are

necessarily related to the nature of the educational system, a brief explanation of Japan's educational system will precede discussion about the utilization of school broadcasts.

In Japan the percentage of school attendance during the nine-year compulsory education and the percentage of junior high graduates who continue on to senior high school are both very high. Children are required to enter primary school in April after their sixth birthday. Primary school education lasts for six years followed by three more years, from age 12 to 15, in junior high school. In 1983 99.99% of all children aged six through 15 were enrolled in the various levels of primary and junior high schools. It can be said that virtually every child in Japan today completes the nine-year compulsory education.

Pupils who complete the compulsory education and pass an examination are admitted to senior high school. In 1950 the number of students entering senior high school equalled only 42.5% of all children in the corresponding age bracket, while in 1984 the number reached 93.9%. Pupils attending day-course senior high school graduate in three years (15～18), and those attending evening-course school in four years (15～19). The number of children attending kindergarten or other institutions for preschool children has also been increasing. The most recent survey indicates that 63.9% of all five-year-olds were enrolled in kindergarten in 1984.

Fig. 1. Educational system in Japan



The content of the curricula taught in Japanese schools and the number of school hours from primary school through senior high schools are decided in detail by the Ministry of Education. This means considerable uniformity of education throughout the nation. In primary school, for example, first through fourth graders are taught eight subjects, including Japanese language, arithmetic, science, social studies, physical education, drawing and manual arts, music, and moral education. Fifth and sixth graders are required to study homemaking also. Primary school pupils are required to have a total of 5785 school hours in six years, a rule which is strictly enforced. Religious education is prohibited at public schools under the Constitution of Japan. Textbooks issued by private publishers on all subjects except moral education must be authorized by the Ministry of Education. Teachers select textbooks from among the authorized ones, and the local administrative authorities distribute them to primary and junior high school pupils free of charge.

Because the curricula and school hours are set by the Course of Study as above, all pupils in Japanese primary and junior high schools are taught very similar lessons at around the same time of year. This trend has naturally encouraged the utilization of school broadcasts via a nationwide network.

With regard to the availability of qualified teachers, the training system and qualifying examination system for teachers are well established in Japan. Therefore, there is no need for school broadcasts to serve as a substitute for licensed teachers.

NHK produces and broadcasts television and radio programs for children of from preschool to senior high school age for use in the educational system described above. The most significant characteristic of NHK, which is the only public broadcasting organization in Japan and transmits more than 100 school broadcast series on a nationwide scale, is its entire independence from control by the Government. NHK receives no funds from the Government or any other organization; its programs are free from political control and economic interests, and its entire expenses are met by equitable receivers' fees. Primary schools need not pay the fees.

NHK policy for school broadcasts is formulated in Local Advisory

Councils and a Central Advisory Council under the guidance of NHK. The members of the Councils are independently appointed by NHK from among teachers, educational experts and educational administrative officials. The annual curriculum of individual program series and program content are discussed in Program Committees which consist of teachers, educational experts and educational administrative officials chosen by NHK and NHK program directors. Each program series has its own program committee which meets three or four times a year.

NHK spent approximately 80 billion yen for the production of domestic programs including school broadcasts in fiscal year 1983.

To summarize, the fundamental characteristics of school broadcasting in Japan, vis-a-vis the educational system are as follows.

The content of the school curricula is decided in detail by the Ministry of Education, and both pupils and teachers throughout the nation use textbooks written to comply with the Ministry's Course of Study. The broadcasting organization, on the other hand, compiles its programs independently, while obtaining advice from people concerned with education. School broadcasts prepared in this way are utilized under the guidance of class teachers.

The number of radio and television school broadcast series in each school category for the 1983 academic year is shown in Table 1. Both the radio and television school programs are transmitted on channels devoted to education. The possession rate of TV receivers for all Japanese households is more than 98%, and that of radios exceeds 99%. Programs can be received clearly anywhere in Japan. In May 1984, satellite broadcasting started in Japan, so pupils at primary schools located in isolated islands in the Pacific 1,050km from Tokyo can now watch TV.

Table 1. Number of school broadcast series (1983)

	Kinder-garten (age 3~6)	Primary school (age 6~12)	Junior high school (age 12~15)	Senior high school (age 15~18)	Special education (for handi-capped children)
RADIO	3 series	11 series	5 series	7 series	–
TV	7 series	29 series	23 series*	26 series*	2 series

Note: Some series are applicable to more than one school level. These have been included in the figures for each school level to which they apply.
*10 series out of 23 junior high TV series and 22 out of 26 senior high TV series are called "Special Series" which consist of about five programs, while the other regular TV series consist of from 20 to 35 programs throughout a year.

Table 2. Program Schedule of School Broadcasting for 1983 Educational TV Network

Time \ Day		Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
a.m.	00	(P.2g) Science	(P.1g) Science	(P.1,2g) Fairy Tales*	(P.1g) Music √	(P.2g) Music*	(P.1,2,3,4g) Safety Education
	15	(K.) Words & Numbers*	(K.) Puppet*	(K.) Arts*	(K.) Language*	(K.) Music*	(K.) Nature and Man*
9	30	(P.1,2,3g) TV Special Class†	(P.4,5,6) TV Special Class†	(P.2g) Social Studies	(P.2g) Science*	(P.1,2g) Morals	(P.1g) Social Studies*
	45	(P.3,4g) Morals	(P.3g) Science	(P.1,2,3g) † TV Special Class*	(P.4,5,6g) † TV Special Class*	(P.4g) Social Studies*	(P.2g) Social Studies*
	00	(P.1g) Social Studies	(P.1g) Japanese Language	(P.1g) Arithmetic	(P.1,2g) Interdisciplinary*	(P.1g) Science*	(P.1,2g) Morals*
10	15	(P.3g) Social Studies	(P.4g) Japanese Language	(J.4g) Science	(P.3,4g) Morals*	(P.4g) Arithmetic*	(P.3g) Music*
	30	(K.) Puppet	(K.) Arts	(K.) Language	(K.) Music	(K.) Nature and Man	(K.) Words & numbers
	45	(P.5g) Arithmetic	(P.6g) Social Studies*	(P.5g) Social Studies*	(P.5g) Science*	(P.6g) Science*	(P.5,6g) Morals*
	00	(P.1,2g) Interdisciplinary	(P.1,2g) Fairy Tales	(P.2g) Music	(P.1g) Arithmetic*	(P.1g) Japanese Language*	(P.1g) Music*
11	15	(P.4g) Social Studies	(P.4g) Arithmetic	(P.3g) Music*	(P.3g) Social Studies*	(P.3g) Science*	(P.3,4,5,6g) Open Classroom*
	30	(P.3g) Music	(P.3g) Social Studies*	(P.5g) Japanese Language*	(P.4g) Science*	(P.4g) Japanese Language*	
	45	(P.6g) Social Studies	(P.5g) Science	(P.6g) Science*	(P.5,6g) Morals	(P.5g) Social Studies*	(P.3g) Science*
p.m.	00	(J.1g) English	(J.2g) English	(J.1g) Science*	(J.2g) Science*	(J.3g) Science*	(P.4g) Social Studies*
0	20	(H.) Special Series	(H.) Special Series	(H.) Special Series	(H.) Special Series	(H.) Special Series	(P.5,6g, J) Environmental Education*
	40						
	10	(J.3g) Social Studies	(J.1g) Science	(J.2g) Science	(J.3g) Science	(J.) Special Activities*	
1	30	(P.5g) Japanese Language	(P.5g) Social Studies	(P.5g) Science*	(P.3,4,5,6g) Open Classroom	(P.4g) Science*	
	45	(P.6g) Science	(P.5,6g, J.) Environmental Education	(P.6g) Social Studies*		(P.5g) Arithmetic*	
	00	(J.) Special Series	(J.) Special Series	(J.) Special Series	(H.) Special Series	(J.1g) Special Series	
	20	(All levels) Micro-Lives			Music		
2	25	(J.) Special Activities	(J.2g) Mathematics	(J.1g) Social Studies	(J.2g) Social Studies	(J.2g) Social Studies	
	45	(H.) Japanese Language	(H.) Modern Society	(H.) High School** Course Science I	(H.) High School** Course Mathematics I	(H.) High School** Course Mathematics I	
	15	(K.) Music*	(K.) Nature and Man*	(K.) Puppet*	(K.) Arts*	(K.) Language*	
3	30						

Note: K. . . . . for Kindergarten & Nursery School
P. . . . . for Primary School
J. . . . . for Junior High School
H. . . . . for Senior High school
1g.,2g . . . . Grade of School

* Rebroadcast

** Rebroadcasts for Senior High School Course.

† for the handicapped

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Table 3. Program Schedules of School Broadcasting for 1983
Radio 2 Network

Time \ Day		Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
9	45	(K. Higher) Fairy Tales	(K. Higher) Fairy Tales*	(K. Lower) Fairy Tales	(K. Lower) Fairy Tales*	(K. Inter.) Fairy Tales	(K. Inter.) Fairy Tales*
10	00	(P.1g) Japanese Language	(P.2g) Japanese Language	(P.3g) Japanese Language	(P.4g) Japanese Language	(P.5g) Japanese Language	(P.6g) Japanese Language
	15	(P.4g) Music	(P.5g) Music	(P.6g) Music	(P.1,2g) Fiary Tales*	(P.3,4,5,6g) Literature*	(J) Literature*
	30	(P.1,2g) Fairy Tales	(P.3,4,5,6g) Literature	(J.) Literature	(P.4g) Music*	(P.5g) Music*	(P.6g) Music*
	45	(J.1g) Morals	(J.2g) Morals*	(J.3g) Morals*	(J.) Music	(H.) Enriching* Homeroom Activities	(J.) Music*
11	00	(J.2g) Morals	(J.1g) Morals*	(H.) Figures in World History	(H.) Contemporary* Lives	(H.) Encounting* the Classics	(H.) Introduction* to Literature in other Countries
	15	(J.3g) Morals	(H.) Enriching Homeroom Activities				
	30	(H.) Topics in Club Activities	(H.) Contemporary Lives	(H.) Encountering the Classics	(H.) Introduction to Literatures in Other Countries	(H.) Figures* in World History	(H.) Topics* in Club Activities
6	00						(H) Home Room Topics in Part-time High School
	20						

Note: K. . . . . for Kindergarten & Nursery School
P. . . . . for Primary School
J. . . . . for Junior High School
H. . . . . for Senior High School
1g,2g . . . . Grade of School
Higher . . . Higher-lever
Inter. . . . . Intermediate
Lower . . . Lower-level

* Rebroadcast

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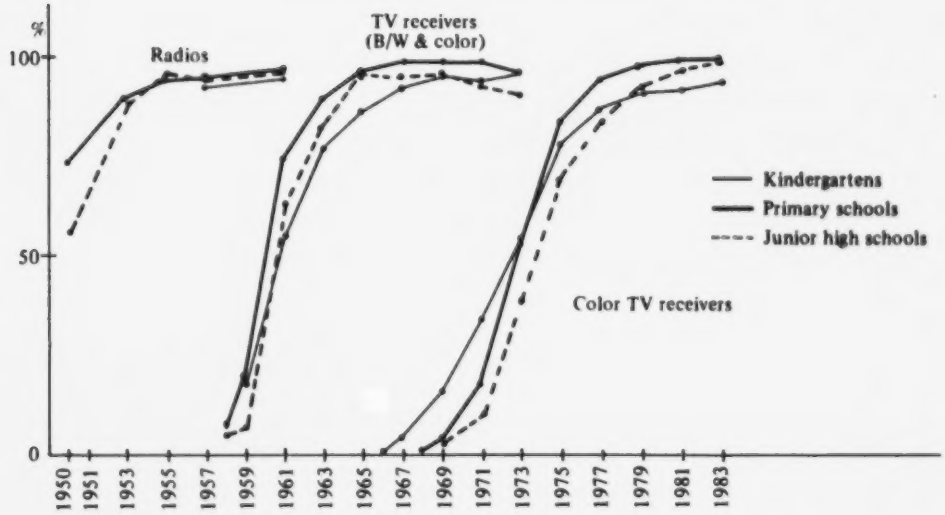
II. Increase in the Number of Schools Utilizing School Broadcasts

Radio

A School Broadcast Utilization Survey conducted in 1937, two years after the inauguration of school broadcasting in Japan, revealed that 59% of all primary schools had radios. Subsequently the number of schools equipped with radios steadily increased until the outbreak of World War II. According to the 1950 academic year survey by NHK, 73% of the nation's primary schools had radios. As shown in Figure 2, the number of schools with radios increased gradually, and in 1957 reached 95% of the total number of primary schools. A similar increase was also registered for junior and senior high schools.

Fig. 2 Percentage of radio and TV receivers in use



Note: The percentage of senior high schools equipped with TV receivers approximates that for the three other school categories.

During this period the number of radio broadcasts for schools was substantially increased. In 1935 there were only 15 radio broadcasts a week totaling four hours and 10 minutes, while in 1953 there were 65 broadcasts totaling 19 hours and 15 minutes.

Though teachers' interest in school broadcasting grew gradually in the 1930s Japan, it was traditionally considered that school education should concentrate on having pupils memorize what was written in textbooks compiled by the Ministry of Education; consequently, the number of teachers actively utilizing school broadcasts in class was very limited before 1950. Moreover, many teachers believed that education in a real sense could be conducted only through personal contact between the teacher and pupils and that it was undesirable to bring electronic equipment between them. The Ministry of Education was not in favor of the use of school broadcasting either.

This being the case, NHK continuously tried to make the educational authorities understand the importance of school broadcasting and to persuade teachers to use this new educational media. NHK also distributed to primary schools throughout the country the annual Teacher's Manuals which explain the contents of school broadcasts for each academic year. As one of its efforts to promote the use of school broadcasts, in 1955 NHK contributed battery-powered radios to schools in areas without electricity so that children in such areas with limited resources could use radio school broadcasts.

With the increase in the number of school broadcasts, the improvement in their contents, and the campaign for promoting their use, the number of schools using the school broadcasts gradually increased as shown in Figs. 3 through 6.

The turning point in school broadcasting came in 1953. Before then the school radio broadcasts served not to instruct pupils directly but to supplement and enrich classroom activities by presenting songs and symphonies, dramatizing Japanese folk stories, etc. However, in April 1953, when the number of primary schools using radio exceeded 30% of the total, the program contents underwent a major change. An elaborate schedule was set up so that the programs could be directly coordinated with the contents of subjects for pupils in the nine-year compulsory education system. For this purpose six instructional

Fig. 3 Percentage of schools utilizing school broadcasts
(Kindergartens)

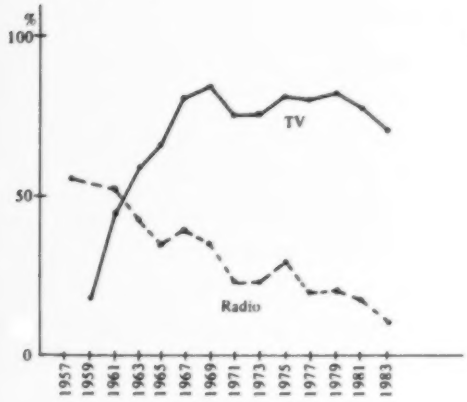


Fig. 4 Percentage of schools utilizing school broadcasts
(Primary schools)

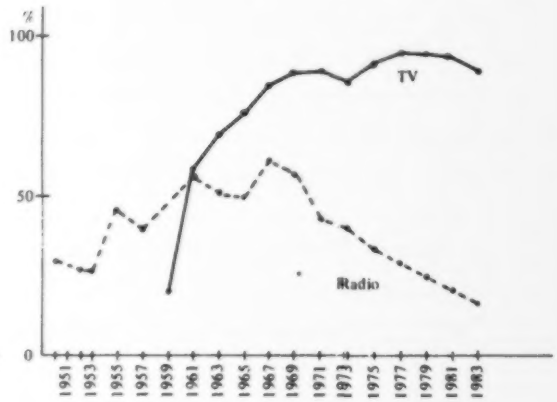


Fig. 5 Percentage of schools utilizing school broadcasts
(Junior high schools)

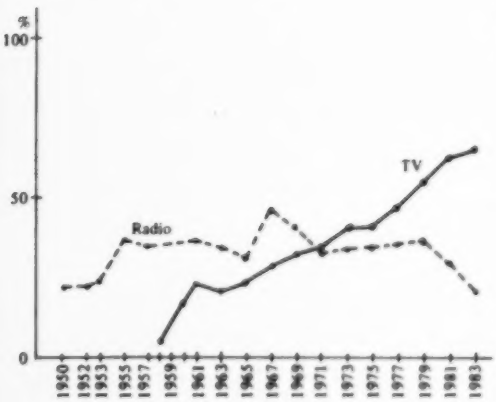
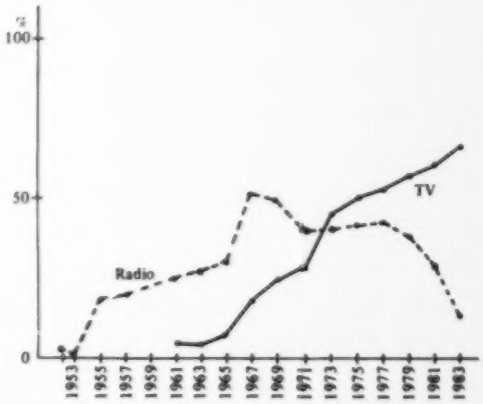


Fig. 6 Percentage of schools utilizing school broadcasts
(Senior high schools)



Note: Each school is counted as a single unit, and is considered to use school broadcasts if even one class uses them.

Japanese-language programs, eight music programs and one English-language program were newly produced. They were offered by grade level and were intended to be used as the main teaching materials for each subject in class. Until this time, primary school Japanese-language education had consisted almost entirely of memorizing, reading, and writing hundreds of complicated characters; the radio programs introduced standard spoken Japanese into classes.

From 1955 until around 1960 radio was the main media for school broadcast, though TV school programs were also broadcast. Particularly, the Japanese-language and music radio programs were used at many primary schools. In addition, three radio series which dramatized children's lives at school and at home and encouraged children think about good citizenship were also very popular: 20 to 25% of the primary schools used them. "Travel in Japan with a Microphone" (social studies) and "Dramas of Japanese History" which served as curriculum-enriching radio series also gained a high reputation.

Television

Since the commencement of educational television in Japan school broadcasting has rapidly expanded throughout the country. NHK's telecasting services began in 1953 there were already three 15-minute TV series for primary schools and two for junior high schools. These TV school broadcasts were transmitted in and around Tokyo over the General Service Network of NHK.

While radio school broadcasts started when half of the primary schools in Japan already possessed radios, TV school broadcasts began when almost no school had a TV receiver. In fact, throughout Japan only about 1,500 households were receiving telecasts as of March 1954.

NHK offered TV receivers for free to several pilot schools, asking them to provide comments on the TV programs, and encouraged TV school broadcast use by teachers who had been using radio broadcasts. In spite of these efforts, only 50 schools were using TV broadcasts a full year after the inauguration of television broadcasting. With the

subsequent expansion of TV coverage and the improvement of the programs, however, the number of schools using TV broadcasts increased to 1,000 by the end of 1955. The increase since 1958 in the percentage of schools which possess TV receivers is shown in Fig. 2, and that of schools which utilize TV school broadcasts is indicated in Figs. 3 through 6. As can be seen from a comparison of the use of radio and television school broadcasts, the number of primary schools using television rose rapidly to almost equal the number using radio only seven years after the commencement of TV broadcasting. According to the 1961 Survey, 56% of the primary schools were using radio broadcasts and 60% TV broadcasts. However, at junior and senior high schools radio broadcasts continued to be used more extensively than TV throughout the 1960s and part of the 1970s.

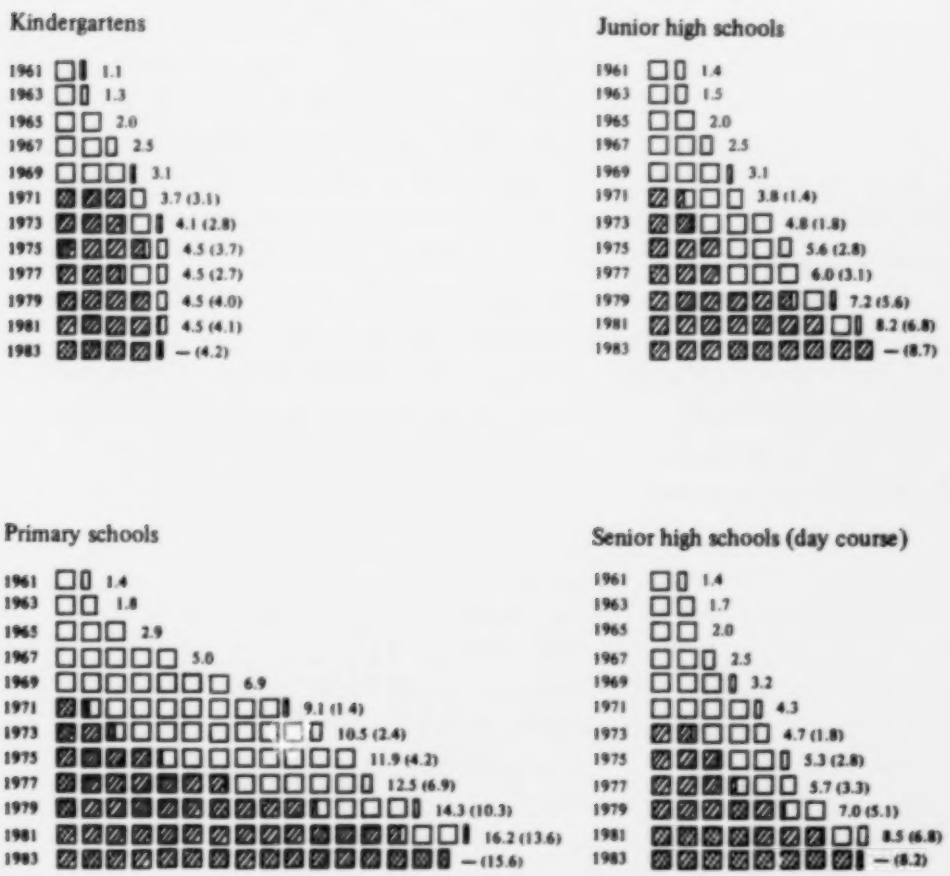
The superiority of television as an educational medium at primary schools is obvious particularly in such fields as nature study, science, geography, and history, and TV broadcasting has also replaced radio for programs dramatizing children's lives.

As Fig. 2 shows, 97% of all the primary schools (or approximately 25,300) had at least one TV receiver in 1965, but the average number of TV receivers per school was so small that TV broadcasts could not be used in every classroom. While the average school had only 1.4 TV receivers in 1961, the average ten years later, in 1971, was 9.1. However, since in 1970 the average primary school had 12 classes, the ratio of TV receivers to classes was still considerably less than one TV receiver per classroom. Therefore, it was common for two or three classes to sit together to share a single TV receiver in a TV viewing room, or for classes to take turns every other week.

As a rule, the TV school series have been broadcast once a week, and each year-long series includes from 20 to 35 programs coinciding with the school terms. Now besides these one-year series, a number of shorter series of around five programs have been broadcast for junior and senior high schools since 1980. The contents of each series are planned and prepared for viewing on a weekly basis. It was very difficult, however, to use such television broadcasts effectively as long as each school had only a few TV receivers.

Since 1965 the number of TV receivers per school has rapidly

Fig. 7 Increase in the number of TV receivers per school
(black & white and color)



Note: The blackened squares and the figures in parentheses indicate the average number of color TV receivers per school possessing color television.
Surveys were not conducted on color television in the years with no blackened squares, and not conducted on B/W television in the years with no white blackened squares.

increased as shown in Fig. 7, thanks to the combined efforts of the educational authorities, schools and parents who recognized the educational benefits of television. In 1981 the average number of TV receivers at primary schools was 16.2.

The color TV receiver diffusion rate began to rise rapidly after 1970, exceeded 90% in 1976, and is now, in 1983, 99.7% at the primary school level. The number of color TV receivers per school, however, has increased rapidly only in the past few years. The 1983 Survey revealed that 88% of all primary schools have a color TV receiver in every classroom.

Table 3 shows the most popular school broadcast series in 1983. The popularity of natural science, social studies and moral education programs in each school category has not changed since school broadcasting started.

Table 4. Most-used school broadcasts and estimated number of schools utilizing those broadcasts (1983)

		Name of series	Percentage of use	Estimated number of schools using series
Kindergartens (age 3~5)	TV	Puppet Show	53.9%	8,200
		Can You Do It?	47.2	7,200
	R	Fairy Tales I	8.6	1,300
		Fairy Tales II	6.3	1,000
Primary schools (age 6~11)	TV	Natural Science (1st grade)	75.1	18,800
		Natural Science (2nd grade)	71.5	17,900
		Moral Education (1st & 2nd grade)	69.9	17,500
		Natural Science (3rd grade)	69.0	17,300
	R	Fairy Tales (1st & 2nd grade)	7.4	1,900
		Radio Drama (3rd ~ 6th grade)	6.2	1,600
Junior high schools (age 12~14)	TV	Natural Science (1st grade)	45.5	4,900
		Natural Science (3rd grade)	44.3	4,800
		Natural Science (2nd grade)	44.0	4,800
		History (2nd grade)	21.5	2,300
	R	Aozora Group (1st grade moral education)	16.2	1,800
		Diary of Akio (2nd grade moral education)	14.9	1,600
Senior high schools (day course) (age 15~17)	TV	Natural Science I	46.5	2,300
		Modern Society	28.1	1,400
	R	Contemporary Lives	10.0	500
		Encounting the Classics	2.5	100

100% = Total number of schools in each category

III. Aims of Using School Broadcasts

NHK, the public broadcasting corporation, has brought a large number of programs with high educational value to all parts of the country, and a large number of TV receivers have been installed in schools of every category. These two facts can be cited as major factors in the increased utilization of TV broadcasts in Japanese schools.

In addition, teachers have altered their attitude toward TV, recognizing the value of educational broadcasts, and the well-organized Association of Teachers Using Broadcasts has systematized TV-radio education.

The advantages of TV broadcasting can be summarized as follows:

1) Broadcasts arouse children's interest in learning and stimulating their imagination.

   The teaching of young children emphasizes stimulating their imagination. By encouraging children to use their imagination, thinking in general is fostered and children become motivated to learn on their own. Effective presentation is very important in provoking young children's ideas. Fairy tales, puppet shows of folk tales, and shadow plays can lead children to the world of the imagination. After watching such programs, many children start reading related books. One TV program, entitled "Otogi no Heya" ("The Fairy Room"), intended for first and second graders (6 years old ~ 8 years old) is watched at 50% of the primary schools in Japan (1983). Radio programs dramatizing fairy tales also enjoy a high reputation.

2) Broadcasts help children understand things they have not experienced.

   In order to fully understand new conceptions and rules, it is best for children to experience them directly. It is impossible, however, for them to experience everything. Broadcasts can fill this gap by presenting appropriate materials in forms similar to direct experience which children can easily understand. Geography programs and historical drama programs as well as certain

science programs belong to this category. Also, English-language programs can teach spoken English accompanied by films about countries where English is spoken.

The most popular geography program series is "Travel with Television" (social studies) which is intended for ten-year-old children. It consists of documentary films reporting on industries in various parts of Japan, such as rice cultivation, the car industry and atomic power generation. This series, which is produced by NHK's central and local stations across the country, is watched at 47% of the primary schools (1983). A series entitled "History of the Japanese People" which is directed to 11-year-old children consists of programs dramatizing the history of Japan from ancient times up to the present, and is used at 59% of all primary schools. One of the programs of this series, "The Giant Statue of Buddha," recounting how and why an eighth century emperor had a huge copper statue made, won an award at the 6th International Japan Prize Contest for Educational Programs.

3) Broadcasts present information concisely and directly so that children can understand it at their own level of mental development.

Broadcasts help children understand complicated phenomena systematically by presenting facts about society and nature in a well-constructed program. A good example is one of the social studies TV series, "Our Life," intended for children eight to nine years old. The children in this age bracket in Japan are taught the roles of transportation, how agricultural products reach consumers, and activities in offices. Well-composed programs help children understand these relationships and systems more easily. The "Our Life," is used at 51% of all primary schools (1983).

The educational value of television is obvious not only in the case of social studies programs but also in programs on mathematics, physics and biology.

"The Green Earth" (started in April 1975) emphasizes the importance of anti-pollution efforts. This series is intended to help children understand systematically that a healthy and safe

environment for human life must be maintained by keeping the earth free of pollution.

"The Amazing Circle-Diameter and Circumference" from the TV series called "The World of Number" intended for children 10 to 11 years old which was awarded the Japan Prize in the 1983 Japan Prize Contest was designed to arouse the interest of pupils in arithmetic in such a way that arithmetic study would become an enjoyable subject.

4) Television presents the interaction of cause and effect and the development of logic in a condensed and simplified manner aiding children to develop logical thinking skills.

Television can present phenomena that take place over a long time under complicated conditions by using condensed sequences to show the interactions of cause and effect in a few minutes. For instance, broadcasts can scientifically present the phenomena of how seeds grow into plants that flower and bear fruit, or why wood floats on water while a stone sinks, so that children can grasp the primary laws of natural science.

NHK's science programs for schools are composed with this aim. Teachers often expect science programs to be full of experiments and films unavailable in the classroom; in programs such as those mentioned, however, basic experiments and the observations of nature which teachers formerly demonstrated without TV are often presented, too. The aim of television is not to have children merely memorize facts, but to help them think for themselves while watching the TV programs.

Parents and teachers once believed that watching TV would encourage children to act impulsively and this fear still remains among some of them. On the contrary, however, if programs are well prepared to suit each stage of children's mental development and if teachers guide them appropriately in how to use television in learning, the programs will aid children in developing logical thinking. Many teachers have proved this with the regular use of TV science programs.

5) Broadcasts provide up-to-date statistical data and information.
Japanese school textbooks are printed each year and new books are given to all children free of charge at the beginning of the new school terms. The printing process of the textbooks requires considerable preparation time. On the other hand, today's society is changing so rapidly in every field that it is difficult to keep the textbooks up-to-date. Some examples of unexpected change are the oil crisis and international tensions.
Broadcasts can send into the classroom up-to-date information accompanied by appropriate interpretations. This characteristic of broadcasts is often displayed in the TV school broadcast series, "Tomorrow's Citizens" directed to junior high schools and "Today's World" intended for senior high schools, as well as in TV science programs.

6) As mentioned above, the Ministry of Education has determined that nine subjects should be taught at primary schools in Japan. It is also very important, however, to try experiments outside the rigid framework of school education, to expand the limits of educational broadcasting. In 1982 NHK started a TV series, titled "Mitsumerume", for those in the lower grades of primary school (ages 6 to 8) which tries to give children an opportunity to observe their environment, to learn about nature, and to feel the joy of making things. While this series is outside Japan's traditional formal education system, it has been praised by many progresive teachers.

7) Broadcasts provide accurate reading, pronunciation and intonation of foreign languages as well as audio-visual models of singing and playing musical instruments. It is, of course, desirable to have teachers provide such examples in class, but not every teacher can pronounce English properly or be an accomplished musician. Particularly in English-language education, Japan has very few English teachers whose mother tongue is English, and many Japanese have few chances of hearing English spoken by native speakers. That is one of the reasons Japanese rely upon TV

and radio English programs.

8) Broadcasts bring the best music, fine arts, theatrical performances and classical plays to the classroom.
Broadcasts can present the world's most renowned symphonies and operas, Japanese medieval dramas now performed by only a small number of performers, old folk music, and excellent art and sculpture from Western and Asian countries, all accompanied by interpretations suited to children.
Similar programs are also transmitted over radio. Old Japanese tales, fairy tales from Western countries, and dramas by contemporary writers have been presented in the form of radio dramas for classroom use since radio school broadcasts began in 1935. These programs enjoy high popularity among teachers.

9) Broadcasts dramatize children's daily lives and also include children's discussions of the problems which they encounter daily. In school, children listen to these programs before or after they discuss their own problems. Such programs provide good materials to enliven in-class discussions and widen their scope.
Children discuss various problems in class concerning their lives at home, at school, and in society. They often consider such themes as courage, friendship, parent-child relations, and prevention of cruelty to animals. In junior and senior high school, sex, occupation, and international understanding are some of the often-discussed topics. Children exchange their opinions on these themes once or twice a week, and thus are encouraged to become good members of the community.
For these discussion hours, as of April 1983 NHK transmits five radio and eight TV series. Children in primary school and the lower grades of junior high school prefer to use the above-mentioned themes presented in the form of drama, and those in the upper grades of junior high and senior high school prefer programs in which the themes are discussed by children in the same age bracket as well as by specialists.
Radio programs dealing with such themes now enjoy the highest

rate of use in junior and senior high schools. Among the programs, "The Diary of Akio" directed to 13-year-old pupils is used by 15% of the junior high schools, and "We Think" for pupils 14 years old by 13%, while "How Young People Should Live" is used at 10% of the senior high schools. In primary schools, three TV programs dramatizing children's lives are very popular, being used at about 70% of the schools.

10) Broadcasts help children learn standard Japanese.

There is only one national language in Japan, and there is almost no illiteracy. Nevertheless, certain regions of Japan have their own dialects and children growing up in those areas have some difficulty in speaking Japanese with the standard pronunciation and accent.

As a result, they often had some trouble later when they sought employment in the city. In order to alleviate this situation, attempts were made to diffuse standard Japanese through primary school education. School broadcasts have played an important role in this field, too.

In addition to school broadcasts, general programs have also played an important role in spreading standard Japanese, so that now all Japanese can communicate with each other using standard spoken Japanese.

Such being the case, the Japanese-language programs now being broadcast teach the use of honorifics, elocution, debating and general rules of speech.

11) Broadcasts provide teachers with suggestions and models of how to teach their pupils.

Specialists cooperate in each step of the planning and production of school broadcasts, checking carefully whether the contents are accurate, the materials are educational and the composition is fit for the intended age group.

Radio-teachers and TV-teachers are chosen from among teachers who have both experience and excellent reputations in education.

Many teachers who use various kinds of school broadcasts in class

say that they obtain new information about teaching, and learn effective methods of presentation and ways of teaching from the school broadcasts.

12) School broadcasts are less expensive and easier to use than other teaching materials.
The above-mentioned reasons for using broadcasts could also apply to other audio-visual aids such as video tapes, educational films, film strips, and slides for educational purposes. However, broadcasts can be used more cheaply and easily. This is particularly true in Japan where many school broadcasts are transmitted by the public broadcasting corporation and many classrooms have their own TV receivers.

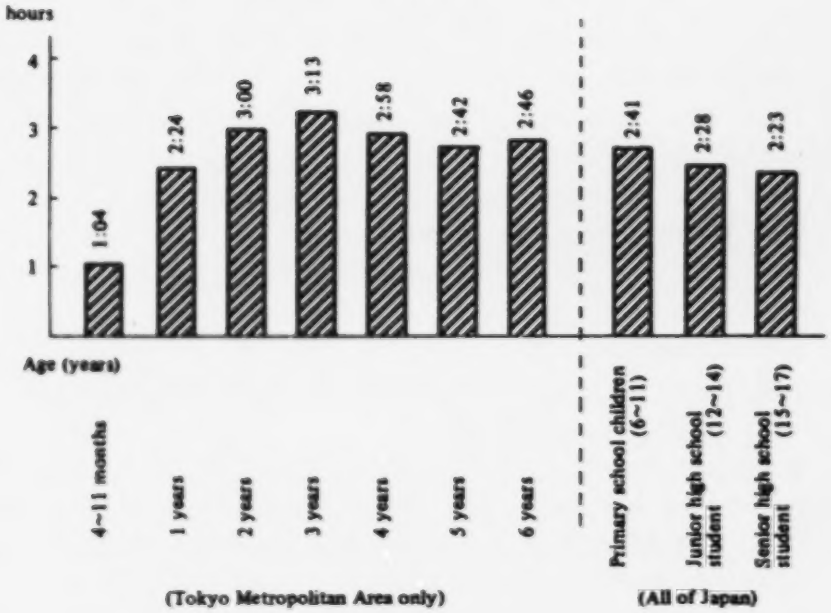
13) School broadcasts are a useful form of so-called media education.
Today's children have more opportunities to learn from the TV screen than from printed materials; it is necessary therefore to teach them how to understand the screen images or how to produce visual educational materials. They need to learn how to understand ways of expression through TV screen images and how to express themselves through visual images. To develop this, it is helpful to utilize school broadcasts.

14) Lastly, school broadcast use teaches children to be critical television viewers.
At present the average Japanese adult watches television for more than three hours a day, and even 3-years-olds watch TV for three hours a day (Fig. 8). People learn a lot from television regardless of whether they are conscious of it.
Annual TV viewing time of primary school pupils is longer than their study time at school. Today's children live in a society where very many TV programs and commercials are broadcast, and therefore they need to become "active viewers" who can choose and watch TV programs critically. In view of this, the roles played by broadcasting will become increasingly important in terms of life-long education. This is another reason why it is

necessary to use radio and television in school. Children who acquire the habit of learning from broadcasts and learn to view TV critically at school will be able to continue to educate themselves with TV and radio.

Broadcasts are given tremendous importance in Japan as media for educating children and adults; and how broadcasting can be used to educate most effectively is a focus of attention today. This will be discussed in detail in a later section.

Fig. 8. TV viewing time of Japanese children (1979)



IV. Research on School Broadcasting

NHK has attached great importance to research on broadcasting for schools. Such studies are divided into two categories: surveys on current usage and research to develop new programs.

The first category uses the methods of social research. Surveys have been made in schools throughout Japan, involving several thousand teachers or pupils, every year since 1950 by NHK Broadcasting Culture Research Institute. One of the main topics is the utilization of school broadcasts. Figs. 3 through 6 show some results of this research. Another main topic in this field is evaluation of each program and of school broadcasting as a whole. For example, it is possible to learn through questionnaires how teachers evaluate the effects of the programs they use in class. The diffusion of radios, TV sets, and VTRs (VCRs) is another main topic (Fig. 2), since the spread of educational broadcasting naturally depends on such equipment.

The second category of studies on school broadcasting includes experiments involving the programs. Analysis of programs by a program analyzer and verification of the educational effect of programs, made by comparing tests before and after the program viewing, are included in this category. A pilot study to analyze the reaction of pupils to various types of experimental programs is also very useful in improving programs. For example, three TV science programs with the same images but different narration were shown to pupils, to find which was most effective from an educational point of view. In another experiment, the metamorphosis of butterfly was introduced on TV in three different forms — film, photos, and drawings for children from three to six years old. Through this experiment, it could be learned which type of program could draw the children's attention most effectively in each age bracket. Recently studies using computer animation have become popular.

Social research and studies with experimental methods are both very important for educational broadcasting, and the NHK Broadcasting Culture Research Institute (former the NHK Radio and Television Culture Research Institute) has played a most active role in this field.

V. Exchange of Views Between Teachers and Broadcasters

The widespread use of school broadcasts in Japan is largely due to the well-organized group of teachers who use such broadcasts. Together with educational specialists, teachers analyze the programs and make studies on teaching through broadcasts; then ideas are exchanged among the program producers, teachers and the educational authorities. As a result, many teachers' attitudes toward teaching using broadcasts have become more favorable and the broadcasting programs have been improved as well.

Since 1935, the year school broadcasts were started in Japan, seminars on the use of school broadcasts have been held in various parts of the country. Thanks to such activities, teachers' associations for studying the use of radio broadcasts were founded in many parts of Japan.

After a temporary suspension of school broadcasting research activities during World War II, in 1946 and 1947 renewed research associations were organized in both cities and rural areas. By April 1948, there were 62 teachers' associations for studying the use of radio broadcasts.

In those days, politics, the economy, and education were all in chaos due to the defeat in the war, but many teachers who believed in the important role of broadcasting in the reform and reorganization of education strongly urged the necessity of a nationwide broadcast research association. As a result, 1,300 teachers gathered in Tokyo in November 1950 and established the All-Japan Teachers' Federation for Studying the Use of Radio and Television in Education (usually called 'Zemporen', a shortened form of its Japanese name).

The object of this Federation is to expand the use of broadcasts in education and to enlighten schools in their use, and at the same time to study methods of using broadcasts in classes. In addition, the Federation presents teachers' opinions to the broadcasting organization about the improvement of programs, and submits data on the effects of broadcast use. The Federation is composed of the local federations in eight districts of Japan, and each local federation has broadcast education research associations under its control.

The number of schools participating in the Federation has increased as has the number of teachers who use broadcasts. In 1969, the All-Japan Federation reorganized itself into groups for kindergartens, primary schools, junior high schools, and senior high schools to make its activities more effective, and this system continues today. As of 1983, 83% of the 78,785 kindergartens and schools in Japan are members of the Federation.

The Federation often holds meetings for studying programs and the way of using programs in each prefecture and in schools of each category. Once a year teachers from all types of schools meet to exchange views with the program directors, specialists in educaton and educational authorities. In November 1983, about 12,000 teachers gathered in Kumamoto, a city in central Kyushu to attend the 34th national convention.

There is also a useful system by which NHK entrusts hundreds of schools throughout Japan with the use of a specific program to obtain feedback from the teachers. NHK asks these schools to prepare reports on the reactions of both the children and teachers to that program. This sytem has been used for the past 34 years, contributing much to the actual improvement of program contents.

VI. Obstacles to the Use of School Broadcasts and the Role of VTR in School Broadcast Utilization

School broadcasts have great educational value, as described in Section III, but there are also several obstacles to their use.

In 1958 NHK conducted a survey on the objections of teachers to the use of school broadcasts, in preparation for the inauguration of a TV channel intended exclusively for educatonal broadcasting the following year. The percentage of TV receivers in use and that of schools using TV school broadcasts in 1958 were as follows:

	Percentage of TV receivers in use		Percentage of use of TV school broadcasts
In 1958	Primary schools: (1,837 schools)	8.1%	6.8%
	Junior high schools: (725 schools)	5.8%	3.5%

Reasons for non-use of school broadcasts:

(100% = schools with TV sets but not using school broadcasts)

		Primary schools	Junior high schools
1.	No place to watch TV in school	37.4%	32.9%
2.	Inappropriate broadcasting time	36.9	67.1
3.	Not enough TV receivers	31.1	47.4
4.	No time to use broadcasts in the school curriculum	18.9	12.3
5.	Inadequate broadcast reception	14.0	5.3
6.	Contents of school curriculum do not correspond to those of broadcasts	11.7	11.4
7.	Teachers are not acquainted with the contents of programs beforehand	9.9	8.8
8.	Cannot afford the maintenance cost	2.7	3.1
9.	Teachers are unable to lead broadcast use	0.9	4.4

In 1958 there was an average of only 1.1 TV receivers in each primary school, and 90% of the schools using school broadcasts had one TV receiver in a TV room where more than 100 pupils watched programs at the same time. This was why many schools replied that there was no place to watch TV and that they had too small a number of TV receivers to use them for teaching.

In 1959 NHK started to use one TV channel exclusively for educational programs. According to a survey conducted in 1960:

		Percentage of TV receivers in use	Percentage of use of TV school broadcasts
In 1960	Primary schools:	52.8%	45.6%
	Junior high schools:	35.7%	17.2%

These figures show that many schools did not use school broadcasts even though they had TV receivers. The reasons cited for not using school broadcasts paralleled those given in 1958.

As shown in Figs. 2 and 7, the number of schools equipped with TV receivers increased rapidly each year, while the number of TV receivers per school remained at one or two for a long time. However, TV receivers per school started to increase rapidly in 1968, so that a shortage of TV receivers is no longer a serious obstacle at least in primary schools and kindergartens. Until the middle of the 1960's, the use of television in the classroom was confined to a few innovative teachers who had a strong interest in the new medium and science teachers who were accustomed to the handling of electronic equipment.

In the 1970's the TV receiver became as common as a blackboard and chalk in the classrooms of primary schools. Today, there are very few primary school teachers who consider television an intruder in the classroom.

On the other hand, some problems remain in junior and senior high schools. Although the number of TV receivers per school has increased, the number of teachers using television has not expanded correspondingly. The principal reasons for this seem to be that (1) the

teachers of these schools are more confident about teaching their pupils by themselves because they consider themselves specialists in the subjects they teach, and (2) most of the contents of teaching at the high school level are basically easier to convey by printed materials than by television compared with the contents of primary school education. Three other reasons for the lack of increase in the number of junior and senior high school teachers who use television are explained below.

First, as the 1958 Survey indicates, the greatest obstacle has been that the broadcasting time schedules have not corresponded to class schedules at school. Generally in Japan one teacher teaches all subjects at primary school, while at junior high school and above more specialized teachers are required, and therefore the teacher changes with each subject. Accordingly it is very difficult to schedule the broadcasts, which are transmitted at a fixed time each week, so that they fit the teachers' daily schedules. Taking this into consideration, NHK repeats the same program two or three times a week. Yet in spite of this effort, schools with many classes find it difficult to use the school programs at the time of day they are broadcast.

Secondly, there is little correspondence between the broadcast curriculum and that of the school. Though the contents of education are fixed by the Course of Study issued by the Ministry of Education, at the high school level there are many differences in the educational conditions of various districts, and types of school vary to some extent. Broadcasting the same program throughout the country therefore hampers the use of school broadcasts.

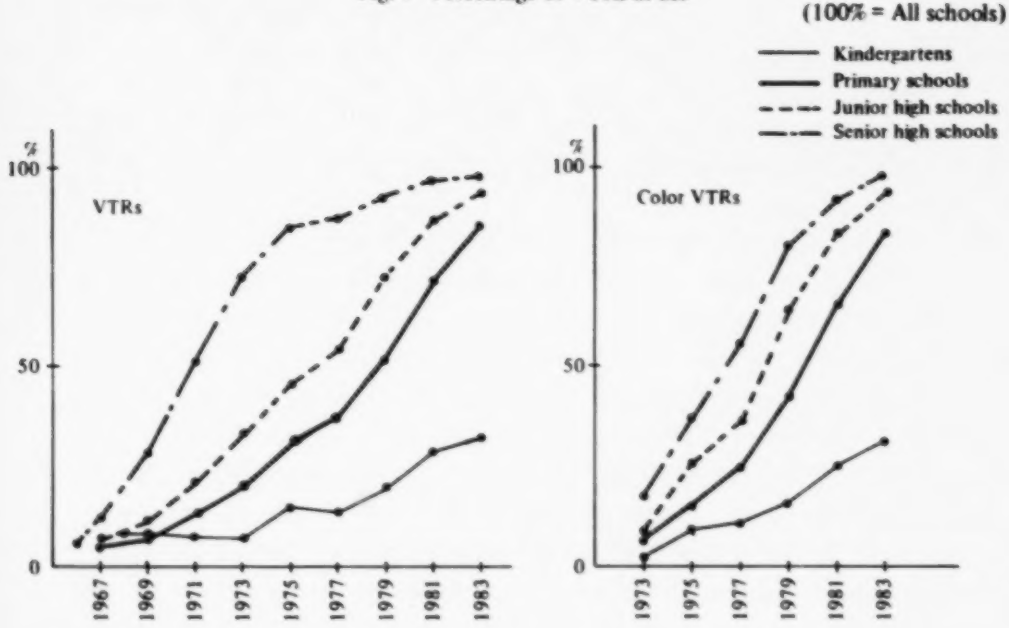
Thirdly, another reason that has made teachers hesitate to use school broadcasts in class is that they have had no advance knowledge of the broadcast contents. Since the inauguration of school broadcasts NHK has prepared the Teacher's Manuals before the programs are transmitted and distributed them to the schools free of charge or at low cost. It has thus been possible for teachers to read an outline of the program contents beforehand, but on many occasions teachers have not been satisfied with the contents of the Teacher's Manuals. Also, it has been very difficult for the program directors to produce every program exactly as outlined in the Manuals prepared six months earlier.

This gap has long been a cause of dissatisfaction among both teachers and program directors.

In 1964 the first video tape recorders for home use (VTRs)* were marketed. This device can eliminate all of the above-mentioned obstacles to the use of school broadcasts at a comparatively low cost. VTRs enable teachers to use TV programs at the most convenient time, in accordance with the lessons being taught. If occasion demands, they can replay only a part of the program or show the same portion repeatedly. Furthermore, teachers can watch the program before they use it in class to make necessary plans in advance.

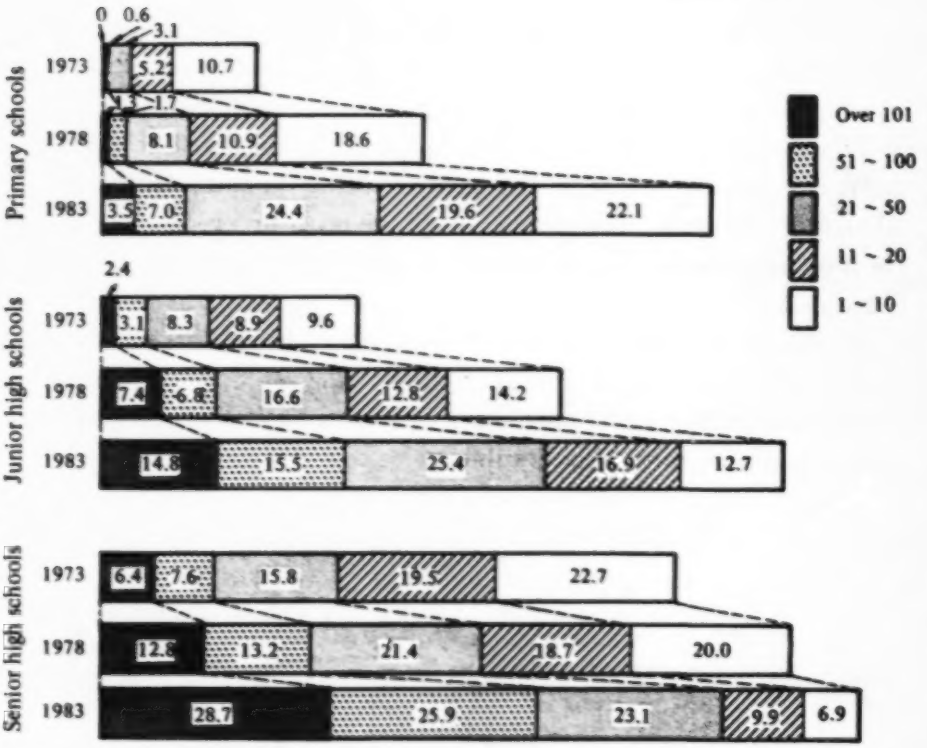
Realizing the merits of VTRs in using school broadcasts effectively, many schools now have such equipment. (Fig. 9) Some local educational authorities have purchased and distribute VTRs to all the schools in their immediate localities.

Fig. 9 Percentage of VTRs in use



* VTR (video tape recorder): in the U.S.A. the term of "VCR (video cassette recorder)" is used.

Fig. 10 Number of VTR tapes (100% = All schools)



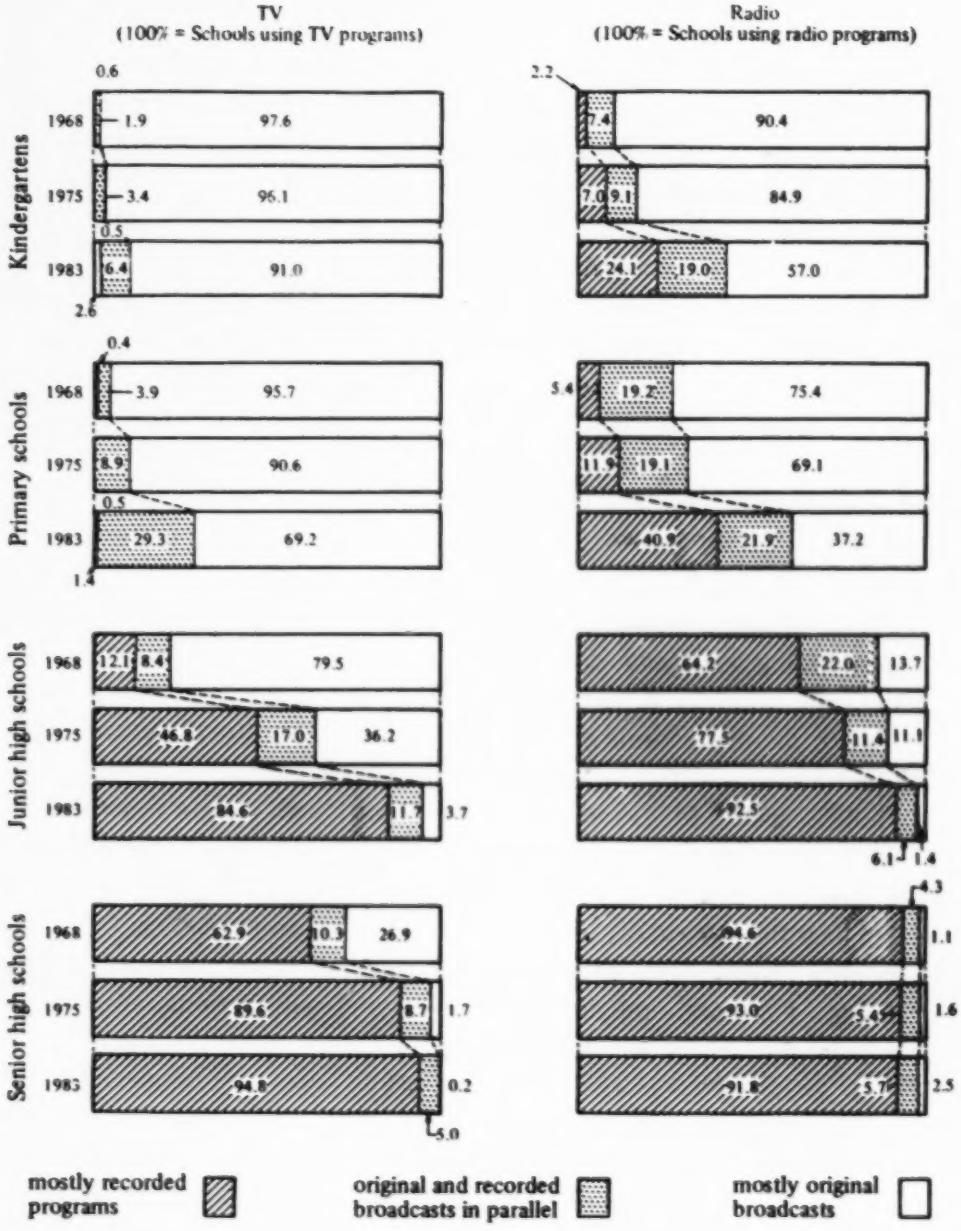
From about 1965 VTRs have rapidly diffused among junior and senior high schools. Comparing the lines in Fig. 9 with the changes in the TV school broadcasting utilization rate shown in Figs. 5 and 6, it is easy to see how the latter began to climb with the introduction of VTRs.

As VTR use has spread, the average number of VTR tapes per school has also increased, and the 1983 Survey indicates that more than 29% of the senior high schools and more than 15% of the junior high schools possess more than 100 VTR tapes. (Fig. 10)

With the increase in VTRs and VTR tapes, the use of TV programs in a recorded form has increased. (Fig. 11)

In 1983 95% of the senior high schools using TV utilized the programs mostly in a recorded form.

Fig. 11 Changes in the use of original broadcasts and recorded programs



Junior high school use has changed conspicuously in the past ten years from off-air utilization (use of original broadcasts) to recorded utilization, and at the same time overall utilization has also increased. In 1972 the number of junior high schools reporting recorded utilization exceeded 50% of the total number of schools using television.

During the early period of diffusion, VTRs were often used to eliminate differences between class schedules and the times the programs were actually broadcast, or as a means for covering any gaps between the content of the program series and the school's curriculum outline. However, with the continued diffusion of video equipment and reductions in videotape costs, schools began to purchase tapes in larger quantities and to record and stock a number of programs for use as desired.

A survey conducted in 1983 shows that 81% of all junior high schools and 91% of all senior high schools using school broadcasts have stocks of TV school programs which were broadcast before 1982. (Fig. 12) Many schools are now setting up VTR tape libraries for school use.*

VTRs make it possible to use in class general programs broadcast in the evening hours and on Sundays, too. For instance, 45-minute evening documentary programs dealing with the politics, economy, and culture of other countries or short segments of their programs are often used as very useful teaching materials for high school social studies classes. Many programs of the "Silk Road" series, which has a high reputation among adult viewers, have also been used at schools in a recorded form.

Since the recorded utilization of school TV programs has become popular, NHK started new series for VTR use at high schools in the fields of science, engineering, Japanese classical drama, fine arts, calligraphy, sports and so on.

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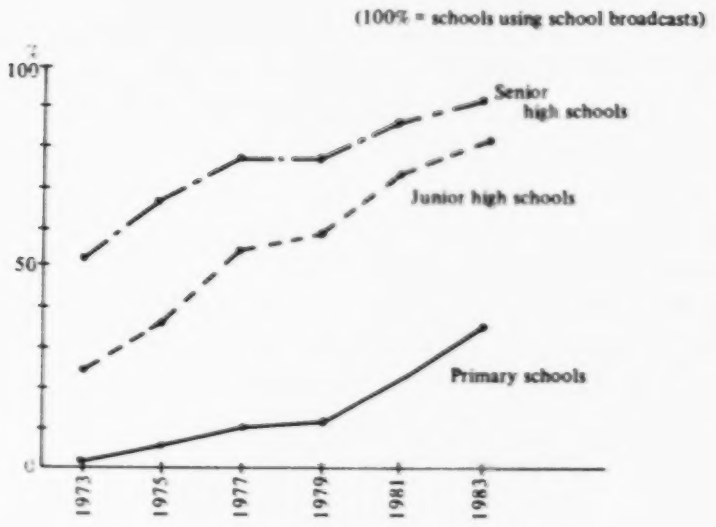
* Note: The Copyright Act of 1971 permits the recording of educational programs as long as they are used within schools for educational purposes, and the use of the recorded tape is limited to persons who have recorded it for that purpose.

Fig. 12. Schools with stocks of TV school programs broadcast in previous years



VII. Educational Broadcasts for Handicapped Children

For the three years from 1958 to 1961, NHK broadcast radio programs which portrayed the process by which a three-year-old deaf child acquired language through the encouragement of his mother and the teacher's efforts. At that time education for deaf children of preschool age was not yet well advanced in Japan; the number of schools devoted to education for deaf children was 103 in 1958, of which only 12 had classes for three-to-five-year-olds.

This radio series introduced people to the importance of training deaf children from earliest infancy. Although the number of infants who could be admitted into classes of deaf schools was still limited, the number of applicants for such classes was on the increase.

In the summer of 1960 NHK started to televise a program series called "Deaf Children's TV School" to help satisfy the need for such education. This TV series guided mothers of deaf children in training their children at home and help their children lead more normal lives.

As the number of deaf-infant classes increased thanks to this TV series, the contents of the program have also changed. This series was transmitted for 30 minutes on a nationwide scale mainly for mothers having deaf children aged two to three. In April 1984, NHK started a new 30-minute TV series for mothers of handicapped children. These series are intended to guide both mothers and families on how to help their children until they enter school.

NHK started another TV series, "For the Deaf" mainly for deaf adults and their families in April 1977. Its 20-minutes programs are broadcast every other Sunday evening. In the programs, sign language, finger spelling, lip-reading, and subtitles are presented. The programs include introduction of deaf people in various fields and in various countries, news of the deaf world, education for deaf children, and sign language lessons.

It is well known that television can stimulate mentally handicapped children. Since the start of TV school broadcasting, a large number of classes for mentally handicapped children have utilized school television, and many teachers of such classes have written letters to NHK. From such letters NHK learned about the possibility of making pro-

grams specifically for the mentally-handicapped by making use of the educational characteristics of television. As a result, in 1963 NHK started a new program series consisting of conversation, a puppet show, song and dance, and animation. This series was welcomed not only by the mentally-handicapped children at school but also by handicapped children of preschool age at home.

Two years later, in 1965, the program was expanded into two series, one intended for around seven-year-old children and the other for around ten-year-old children. Half of all Japanese primary school have a class for handicapped children. According to a 1983 survey, 13% of the primary schools having such classes are using these series.

In addition to these two TV series, a 30-minute weekly TV series was started in 1966 for mothers of children with speech impediments. An educational radio program directed to the parents of mentally-handicapped children and a general radio program intended especially for blind people are transmitted nationwide once a week. These programs enjoy a high reputation among both handicapped people and other people concerned with social welfare for the handicapped.

In October 1983 teletext started in Japan. NHK has developed its own technique different from either Ceefax or Antiope, since it is necessary to display several thousand different symbols in written Japanese.

VIII. Current Problems of School Broadcast Utilization

Several thousands of teachers from all over the country meet every autumn to hold a nationwide convention on school broadcasting during which they demonstrate the use of broadcasts in the classroom, discuss program utilization, and exchange views with program producers. At the 24th national convention held in Sapporo, the capital of Hokkaido, many of the teachers strongly supported the goal of using broadcasts not only as a teaching aid in class but also as an important means to study how and what can be learned from broadcasts in general, and particularly, from screen images.

At 95% of all primary schools in Japan television and/or radio are used for educational purposes, and at the majority of those schools broadcasts are used as an aid for teachers. When teaching certain items in the school textbook, teachers often show the related programs to the pupils. Therefore, teachers need to know the contents of a program in detail before they can use it with their lessons. When the broadcasting schedule does not correspond to a schedule fixed in the school curriculum, they feel dissatisfied. When they judge that the children did not understand the contents of a TV program, they try to show it again in a recorded form.

But now some teachers argue that such broadcast use does not distinguish the broadcasts from slides, films, and VTRs, and so does not reach the full potential of educational broadcasting. Their argument is that children of today learn much more from broadcasts at home than they learn at shcool and that people can learn much from broadcasts throughout life. Therefore, children must learn how they can utilize broadcasts to continue to learn on their own. The essence of television is that it is instantaneous; it cannot be stopped or repeated; it presents information not only by narration but by screen images. Since these are the characteristics of broadcasting, it is essential to teach children directly how to make the best use of TV. These teachers therefore think that recording programs for previewing is not desirable. Teachers should be able to get a vivid impression and guide the children well when they watch a broadcast together with the children. Proponents of this view of broadcasting say that television should be

used continuously every week, even if the contents of the programs do not correspond to those of the textbook. Also, they assert that while in the past teachers basically thought that the contents of printed materials ought to be memorized by the children, this idea must be altered because future society requires a change in education which will lead children to independent thinking and creativity. A main purpose of education using broadcasts should be to make children learn directly from television and radio, not to use the broadcasts as mere auxiliaries for printed teaching materials.

On the other hand, there are many teachers who insist that they should know as many details as possible about the contents of a broadcast before they show it to the pupils, just as they have details on other teaching materials, and that they should select and show their classes only those programs that agree with the teaching scheme in the textbooks. These teachers stress careful planning and preparation before showing television programs in class and also stress the instruction that follows broadcasts.

In order to learn what teachers expect of television NHK has often conducted nationwide surveys. The data indicates that only few teachers want to show original broadcasts continuously to the children without previewing by the teacher, especially if the contents do not fit those of the lessons in class. Nevertheless, the new arguments on the essential nature of broadcasting should be given due consideration in predicting the course which school broadcasts may take in the future.

For the present, however, the majority of teachers, especially in high schools, still support the idea that the programs should be recorded and their contents evaluated beforehand. The majority further thinks that only programs that fit their teaching aims should be selected and shown as recorded programs on the most suitable occasion. Cassette tape recorders and portable VTRs are now widely used at school, and their adoption for school broadcasts continues to grow. Encouraged by this fact, many teachers who previously had not utilized broadcasts, because they sought to preserve their independence in selecting teaching materials, began to use recorded programs. To appeal to these teachers, the NHK Service Center, and NHK-affiliated organization, now sells VTR recordings of TV programs and

cassette tapes of radio programs. Teachers often combine VTR tapes recorded several years ago with a newly televised program to create a series of their own. Moreover some teachers even combine sequences they have recorded by themselves using a VTR camera with portions of VTR-recorded broadcasts.

With the increase in partial and varied use by teachers, the question has arisen whether broadcasters should also transmit teaching materials that teachers can use in combination with complete instructional programs.

Japan has a high percentage of school use of not only radios and TV receivers but also other audio-visual aids. According to the 1979 Survey, 75% of the primary schools and 79% of the junior high schools possess motion picture projectors; 92% of the primary schools and 94% of the junior high schools have slide projectors; and 96% of the primary schools and 96% of the junior high schools own overhead projectors.

Of the various audio-visual aids used in education in Japan, radio and TV receivers are used much more frequently than any other kind of audio-visual aid. Broadcasting programs also seem to be used in lieu of motion pictures and slides.

IX. Teacher Expectations About Educational Broadcasting

1) More schools looking at the resource value of educational broadcasting

It is possible, when preparing programs, to take advantage of the instant (news) value of school broadcasting because of its ability to transmit educational materials over the airwaves. For example, if some event were to take place in some part of the world, it might not be possible to present a program for the schools that very same day, but it should be possible to prepare a social studies program on TV for showing the following week or, if necessary, the week after that. It is possible, on the other hand, to prepare programs rich in resource value. The results of inquiring into this aspect of school broadcasting are given in Fig. 13. Looking at this figure shows that the expectations of primary school teachers in relation to the "resource value" of school broadcasting have increased a great deal during the past year.

2) Program libraries

The number of schools using taped programs subsequent to the year they are broadcast is increasing year by year. Some scholars think that, based upon traditional educatonal broadcasting theory and principles, this is not a very beneficial trend. Another thing is that the primary schools, which are behind the junior and senior high schools in their procurement of video equipment, the development of program libraries has not yet advanced so very far.

The questions shown in Fig. 14 were therefore incorporated into the survey. The results show that very few schools reject the idea of a program library. In spite of the fact that at present there are not so many schools, particularly primary schools, which are building their own program libraries there are many schools which wish to establish one.

3) Partial and repetitive utilization

A fairly large number of schools either select only 15 or 20 minutes of a program for use or repeatedly show a short segment of a program over and over (Fig. 15). The primary schools are not an exception to this. Attention should be called to the fact that the results of this survey show that nearly half of the senior high schools which are using TV programs in science instruction are involved in either partial or repetitive utilization of these programs.

Fig. 13. Expectation in regards to the resource value of programs

(100% = All schools)

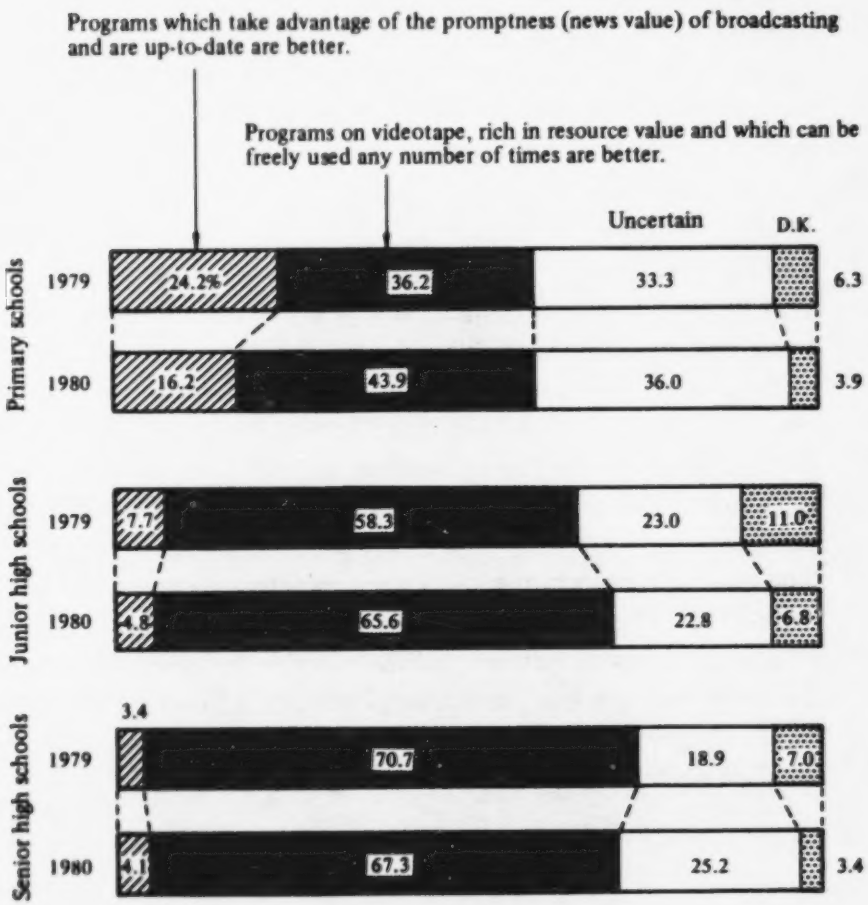


Fig. 14. Do you wish to promote long-term retention of programs on videotape so that they may be drawn upon for later use?

(100% = Schools using NHK TV school broadcasts)

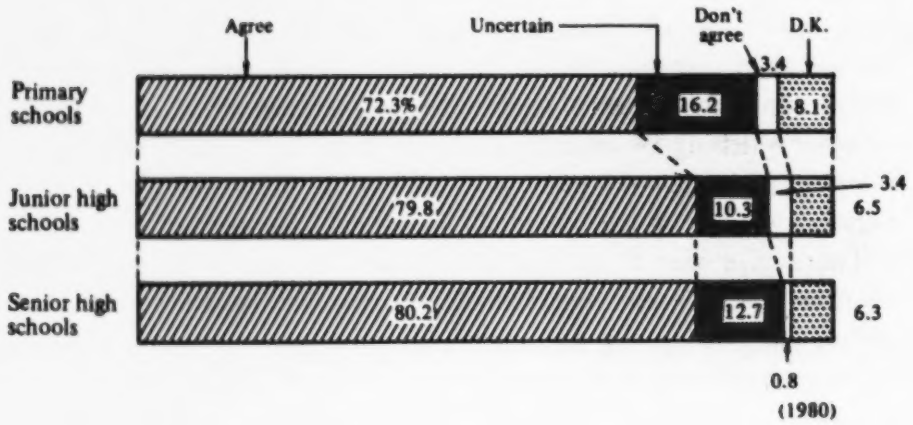
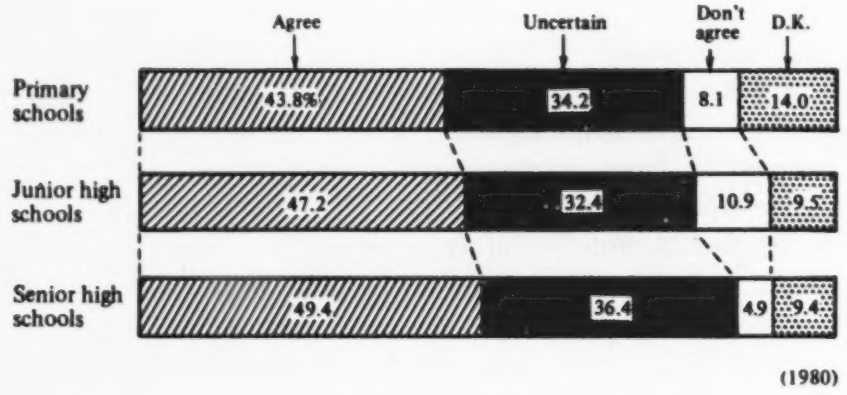


Fig. 15. Do you wish to promote partial and/or repetitive utilization of programs?

(100% = Schools using NHK TV school broadcasts)



X. The Study of Children and Television in Japan

During the thirty years since the NHK introduced TV broadcasting in Japan, many studies concerning children and television have been done in this country. There is clearly a need for a wide range of such studies, but in Japan, so far, the main emphasis has been on the potentially harmful influences of television - for example, on the question of whether watching TV might increase children's anti-social behavior or interfere with their scholastic ability. On the other hand, there are very few studies on the potentially beneficial influences of television.

There have been frequent studies on how the relationship between children and TV can be changed by parents' control over their children's viewing, by the children's own characteristics, and by teachers' instructions on televiewing. So far, however, no general conclusions have been reached on these topics.

Since around 1975, there have also been a number of studies analysing the contents of TV programs popular among Japanese children. Moreover, since the late 1970s, studies of TV for infants have become especially popular. Using the newest results of developmental psychology, the analysis of the reactions of the infant viewers to the experimental TV programs have been very helpful in developing new programs.

In the 1950s, TV programs imported from the U.S. were often broadcast and enjoyed by children in Japan. In the early 1960s, however, Japanese-made programs - including puppet shows, animated cartoons and children's drama series - started to be produced and broadcast in Japan, so that imported children's programs have come to be broadcast only rarely.

In particular, "Astroboy (Tetsuwan Atomu)", the first animated series regularly broadcast in Japan from Jan. 1963 to Dec. 1966, was a great success with children and even adults throughout the country. Since then in the past two decades many other animated cartoon series have been broadcast, and some of these have even been exported to other countries. There are also quite a few programs featuring battles between super-heroes and monsters, often broadcast in prime time by commercial television.

Today, in addition to the programs mentioned above, there are also pop-music shows, quiz shows and many other kinds of programs viewed by children all over Japan on from five to seven TV channels. Many of these programs are considered to contain antisocial material, and parents and teachers often worry about the influence of those TV programs on children.

XI. Summary

Reviewing the school broadcasting utilization surveys made over the past thirty years shows that the first big change was in 1960 when radio and TV utilization rates exchanged places and TV took the lead for the first time. This was also followed by the position of school broadcasting at the primary school level being firmly established. The second big change, which started four or five years ago and is still continuing today, is the development of taped program libraries.

One of the causes behind this development of taped programs libraries has been the Ministry of Education's *National Standards for Teaching Materials and Equipment*. Another factor, of course, has been the diffusion, during this relatively short period of time, of videotape equipment at all school levels, from primary through senior high school, which has come about due to the mass production and lowering prices of smaller videotape recorders. While these have greatly strengthened the diffusion and realization of educational broadcasting they have also brought forth, for both the broadcasters and users of school broadcasting, basic problems of "what educational broadcasting really means."

As its basic philosophy, the field of educational broadcasting in Japan has continued to stress the "on-air" educational advantages of school broadcasting, but in the final analysis it is the teachers' expectations that it will enrich the children's learning and what they are seeking from visual educational materials that count in determining the future of educational broadcasting.

Along with the development of radio and TV program libraries, in the not too distant future video packages and videodisks will become available in great quantities. It appears that in some Western European countries already, not only are educational materials for schools being transmitted over the air-waves but that they are also simultaneous being packaged for shipment. It also appears that in some areas the delivery of visual educational materials has been converted entirely from electrical to physical delivery by land, sea and air shipment.